UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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ART UNIT	PAPER NUMBER
2167	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

		Application No.	Applicant(s)
Office Action Summary		10/669,934	NOURI ET AL.
		Examiner	Art Unit
		Miranda Le	2167

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>19 January 2007</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-15</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-15</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date <u>04/20/07</u>.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____ .

DETAILED ACTION

Withdrawal of Finality

1.   This communication is responsive to the Pre-Appeal Brief filed on 01/19/2007.

2.   In view of the Pre-Appeal Brief filed on 01/19/2007, PROSECUTION IS
HEREBY REOPENED. A new ground of rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the
following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply
under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by
a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or
1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

3.   Claims 1-15 are pending in this application. Claims 1, 6, 11 are independent
claims. This action is made Final.

Response to Arguments

4.   The finality of that action is withdrawn due to the most recent newly found prior
arts Anonsen et al. USP 7,082,433 published on July 25, 2006, and Chow et al. USP
6,941298 published on September 06, 2005 and therefore, a new Non-Final Action
follows accordingly.

Information Disclosure Statement

5.   Applicants' Information Disclosure Statement, filed 04/20/07, has been received,

entered into the record, and considered. See attached form PTO-1449.

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of
the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the
various claims was commonly owned at the time any inventions covered therein were
made absent any evidence to the contrary. Applicant is advised of the obligation under
37 CFR 1.56 to point out the inventor and invention dates of each claim that was not
commonly owned at the time a later invention was made in order for the examiner to
consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)
prior art under 35 U.S.C. 103(a).

7.   Claims 1-3, 5-8, 10-13, 15 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Anonsen et al. (US Patent No. 7,082,433), in view of Chow et al. (US

Patent No. 6,941,298).

As to claims 1, 6, 11, Anonsen teaches an article of manufacture for use in a

computer system for translating a path expression in an object oriented query *(i.e. Data*

access system 12 includes a translator 13 that translates query 30 into a relational

database query 32, col. 4, lines 34-48) to a relational database outer join *(i.e. expressed in*

terms of objects, are translated into a relational database join statement by generating a

parse tree based on the join expression, col. 2, lines 50-58), said path expression

comprising a navigation path through a relationship in a schema, said article of

manufacture comprising a computer-useable storage medium having a computer program

embodied in said medium which causes the computer system to perform:

analyzing *(i.e. parsed expressions before the request 30 is even given to data*

access system 12, col. 12, lines 16-25) each path expression *(i.e. WhereExpression 218 is*

used to specify the entity of interest. For CollectionCriteria 208, it is used to specify a set

of entities. For AdHocQueryCriteria 210 it specifies the data rows to retrieve, col. 9,

lines 20-23) defined in each level of the object oriented query *(i.e. Expressions are*

present in many components of object model 200. For instance, expressions can be

present in JoinList 216, WhereExpression 218 and PropertyAssignmentList 226, to name

a few. For the same purpose that the properties of the entities are translated by data

access system 12 to determine a relational database request 32 that is suitable for input

to relational data store mechanism 14 to retrieve the data or perform some other data

operation, so too must the expressions used by criteria 200 be understood and translated

to suitable expressions for relational data store mechanism 14, col. 10, lines 4-14);

identifying each path expression which can be a candidate for a translation to an

outer join *(i.e. JoinList 216 is used to contain a list of explicit joins for an instance of*

Criteria 202. Each join includes a join type (such as inner, left, or right), a left alias

name, a right alias name, and a Boolean expression that defines the relationship between

the entities involved in the join, col. 4, lines 14-19);

each path expression identified as a candidate for a translation to an outer join,

and making the ordered path expressions as input to a select operator for each level of the

object oriented query *(i.e. JoinList 216 is used to contain a list of explicit joins for an*

instance of Criteria 202. Each join includes a join type (such as inner, left, or right), a

left alias name, a right alias name, and a Boolean expression that defines the relationship

between the entities involved in the join, col. 4, lines 14-19);

grouping the ordered *(i.e. By building a DAG containing the objects being joined,*

and their joins to each other, the graph can be traversed in order to produce the correct

joins in the correct order in relation to one another, col. 14, line 63 to col. 15, line 8)

path expressions sequentially based upon on a source-target dependency between ordered

path expressions and based upon the identifications as a candidate for a translation to an

outer join *(i.e. According to the object model 420 illustrated in FIG. 4B, this expression*

would form a parse tree 480 illustrated in FIG. 4C. Each box in FIG. 4C represents an

object in memory and the lines represent references between the objects. Each expression

object (i.e. the parse tree) would be assigned to the corresponding component of the

Criteria object so that it can be accessed during translation. Referring back to FIG. 1,

each query or other form of requested operation would have completely parsed

expressions before the request 30 is even given to data access system 12, col. 12, lines

16-25);

creating a quantifier for each path expression *(i.e. The qualifier for a node is the*

object path taken to reach the object represented by the node, col. 15, lines 22-32), said

quantifier comprising a variable representing a table in a relational database *(i.e.*

the developers may express the queries in terms of qualified object references combined

with expressions separated by the operators. The qualified object references thus require

implicit joins, since the joins are not explicitly stated. Also, care must be taken so that if

an object is referenced multiple times in an object property join expression, and if it has

the same qualifier, then only one relational database join is made to that object's table

with the correct join condition, col. 14, lines 48-62);

replacing each grouped path expression with a corresponding quantifier and

related table in a relational database *(i.e. Each node of the DAG represents an object*

within the join expression that is mapped to a different row in the relational database. As

mentioned above, there are explicit joins which are specified by the developer. However,

there are also implicit joins which are introduced because a property reference crosses

the boundary between two objects that are mapped to different rows by class-table

mapping 18, col. 15, lines 11-21);

completing a translation of the object oriented query to a relational query *(i.e. In*

order to produce the translated output for the relational database (such as in SQL), and

in order to produce the translation of the joins in the correct order in relation to one

another, the DAG is traversed by the translator component according to the depth of

each node, col. 15, lines 33-44).

Anonsen does not specifically teach:

ordering the path expression starting with path expression defined in a FROM

clause, adding to the FROM clause path expression.

Chow teaches:

ordering the path expression starting with path expression defined in a FROM

clause, adding to the FROM clause path expression *(i.e. The FROM component 604 of*

the query, in this example `FROM objABean AS objA; objBBean AS objB; objNBean AS

objN`, specifies the domain from which data will be retrieved, col. 5, line 65 to col. 6,

line 18; Figs. 7-8).

It would have been obvious to one of ordinary skill of the art having the teaching

of Anonsen and Chow at the time the invention was made to modify the system of

Anonsen to include the limitations as taught by Chow.

One of ordinary skill in the art would be motivated to make this combination in

order to translate the EJB QL into the target language of the database in view of Chow

(col. 3, lines 9-39), as doing so would give the added benefit of allowing for more

efficient retrieval of multiple fields and aggregates of fields than would be possible using

standard CMP EJB query models as taught by Chow *(col. 3, lines 9-39)*.

As to claims 2, 7, 12, Anonsen teaches performing optimization on the grouped

quantifiers, said optimization identifying quantifiers which can be a candidate for a

translation to an inner join *(i.e. inner, left, outer, or right outer joins, as defined by the*

developers specifying the joins, col. 21, lines 12-23);

generating an outer join for each quantifier which remains after optimization a

candidate for a translation to an outer join *(i.e. It can be seen that implicit joins are*

illustratively always emitted as inner joins, while explicit joins are inner, left, outer, or

right outer joins, as defined by the developers specifying the joins. This process is

continued, incrementing the depth to be searched in the DAG each time until the ending

node is reached. There is only one ending node and it represents the final node for

purposes of join translations with respect to this expression, col. 21, lines 12-23);

generating an inner join for each quantifier which remains after optimization a

candidate for a translation to an inner join *(i.e. It can be seen that implicit joins are*

illustratively always emitted as inner joins, while explicit joins are inner, left, outer, or

right outer joins, as defined by the developers specifying the joins. This process is

continued, incrementing the depth to be searched in the DAG each time until the ending

node is reached. There is only one ending node and it represents the final node for

purposes of join translations with respect to this expression, col. 21, lines 12-23).

As to claims 3, 8, 13, Anonsen teaches the optimization identifies a quantifier as

a candidate for a translation to an inner join *(i.e. inner, left, outer, or right outer joins, as*

defined by the developers specifying the joins, col. 21, lines 12-23);

Chow teaches a corresponding path expression is used in a FROM clause *(i.e.*

The FROM component 604 of the query, in this example `FROM objABean AS objA;

objBBean AS objB; objNBean AS objN`, specifies the domain from which data will be

retrieved, col. 5, line 65 to col. 6, line 18).

As to claims 5, 10, 15, Anonsen teaches the optimization identifies a quantifier as

a candidate for a translation to an inner join *(i.e. inner, left, outer, or right outer joins, as*

defined by the developers specifying the joins, col. 21, lines 12-23);

Chow teaches an EQUAL, LESS THAN, GREATER THAN, LESS THAN OR EQUAL,

GREATER THAN OR EQUAL, NOT EQUAL, or NOT NULL operator exits in a

WHERE clause *(i.e. The optional WHERE 606 clause is used to place selection criteria*

on the domain of objABeans such that objA.field 1 must equal the value "2", col. 6, lines

19-28, and Fig. 7).

8.   Claims 4, 9, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Anonsen et al. (US Patent No. 7,082,433), in view of Chow et al. (US Patent No. 6,941,298), and further in view of Touma et al. (US Patent No. 6,160,549).

As to claims 4, 9, 14, Anonsen teaches the optimization identifies a quantifier as a candidate for a translation to an inner join *(i.e. inner, left, outer, or right outer joins, as defined by the developers specifying the joins, col. 21, lines 12-23)*.

Anonsen, and Chow do not specifically teach:

a LIKE, IN, or BETWEEN operator exists in a WHERE clause containing a corresponding path expression.

Touma teaches:

a LIKE, IN, or BETWEEN operator exists in a WHERE clause containing a corresponding path expression *(i.e. the clause type can be an SQL clause (e.g., having, start with, and where). The condition specifies the operator defining the relationship between the parent column and the child column. Examples of condition operators include: equal to, less than, less than or equal to, not equal to, greater than, greater than or equal to, like, and not like, col. 7, lines 23-54)*.

It would have been obvious to one of ordinary skill of the art having the teaching of Anonsen, Chow and Touma at the time the invention was made to modify the system of Anonsen, Chow to include the limitations as taught by Touma.

One of ordinary skill in the art would be motivated to make this combination in order to define the relationship between the parent column and the child column in view of Touma *(col. 7, lines 23-54)*, as doing so would give the added benefit enabling a user to specify an SQL clause and match condition in a relationship between two columns beyond the standard SQL equijoin as taught by Touma *(col. 7, lines 23-54)*.

Conclusion

9.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Miranda Le whose telephone number is (571) 272-4112. The examiner can normally be reached on Monday through Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Cottingham, can be reached on (571) 272-7079. The fax number to this Art Unit is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Miranda Le
May 08, 2007

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